

ICONOGRAPHIA CYPERACEARUM III

Tetsuo KOYAMA
The New York Botanical Garden

Plate 21. CAREX HAKONENSIS Franchet & Savatier

Carex hakonensis Franchet & Savatier, Enum. Pl. Japon. 2:
123 & 550. 1879.

Synonymy: *Carex krameri* Franchet & Savatier, Enum.
Pl. Japon. 2: 124 & 551. 1879.

Carex heleochariaeformis Léveillé & Vaniot, Bull. Acad.
Intern. Géogr. Bot. 10: 53. 1901.

Carex onoei Franchet & Savatier var. *krameri* (Franchet
& Savatier) Kükenthal ex Matsumura, Index Pl. Japon.
2(1): 24. 1905.

Densely tufted in large clumps with short inconspicuous rhizome. Culms 10 - 35 cm tall, ca. 1/3 mm thick, slender, trigonous, soft, glabrous, lightly green, smoothish or weakly scabrous above, leaved only at base. Leaves few to a culm, basal and subbasal; leaf-blades capillary, involute-margined or flat-tish, 0.8 - 1 mm wide, much shorter than culms, fresh-green, thinly herbaceous, acute at apex; leaf-sheaths 0.7 - 3 cm long, pale to lightly brown, thinly herbaceous. Spike solitary, terminal, androgynous, non-bracteate, broadly ovoid to subglobose, 3 - 5 mm long, 3 - 4 mm across, greenish and tinged with red-brown; staminate part narrowly lanceolate, few-flowered, shorter than the pistillate part; pistillate part densely 7- to 14-flowered. Pistillate glumes ovate-elliptic or ovate, shallowly boat-shaped, 1.5 - 2 mm long, acute at apex, membranous, pale and broadly reddish-brown on margins, the costa green, 3-nerved. Utricles spreading, ovate to ovate-elliptic, 2.2 - 3 mm long, compressed-trigonous, membranous, smooth, glabrous, green, suddenly contracted at base, contracted above to a short conical beak, the orifice white-hyaline, emarginate to shallowly 2-toothed. Achenes tightly contained, ovate, trigonous, 1.5 - 1.7 mm long; style short; stigmas 3.

Voucher specimen: Japan, foot of Mt. Hiuchi-dake in Nikko National Park, Fukushima Prefecture, T. Koyama July 1950 (NY).

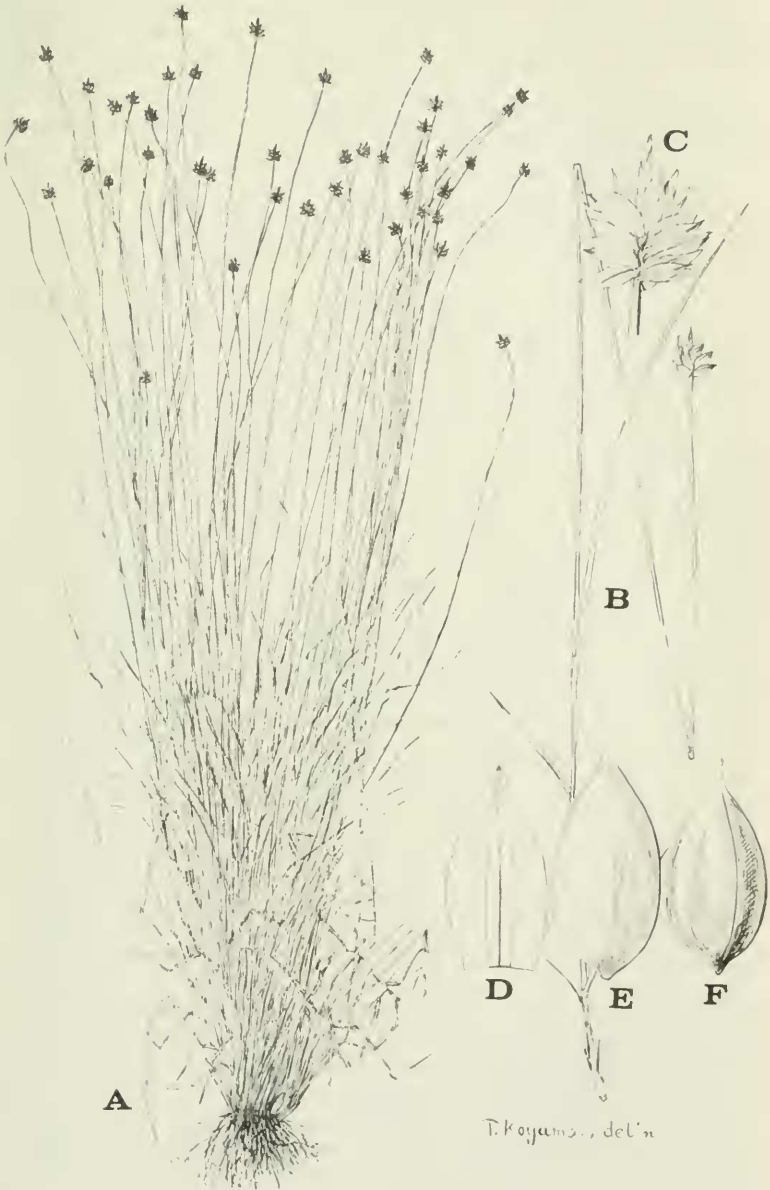


Plate 21. Carex hakonensis Franchet & Savatier

Relatively frequent on damp ground of forests at foot of high mountain. Endemic to Japan and Korea; from southwestern Hokkaido through northeastern and central Honshu southwestwards to high mountains of Shikoku and Kyushu, and in southern Korea.

Plate 21. A. Total plant; B. Enlargement of a culm with leaves; C. Spike; D. Pistillate glume; E. Utricle; F. Achene.

Plate 22. *CAREX POCULISQUAMA* Kükenthal

Carex poculisquama Kükenthal, Feddes Repert. Sp. Nov. 27: 111. 1924.

Rhizome knotty, decumbent, covered with red-brown scales; roots reddish-brown. Culms solitary or 2 to 4 together, hardly tufted, aphyllopodic, slender, 38-60 cm tall, triquetrous 3- to 5-noded, scaberulous on angles or smoothish. Basal sheaths scale-like to spathaceous, the upper ones short-bladed, purplish-brown to reddish-brown, puberulent. Bladed leaves wholly cauline, 3 or 4 to a culm, much spaced; leaf-blades linear, flattish-plicate, 2 - 3 mm wide, 5 - 17 cm long, rather rigid, glaucous- or bluish - green, gradually tapering to acute apex, hispidulous-scabrous on margins and along costas; leaf-sheaths tightly clothing internode, 2.5 - 5 cm long, ventrally white - membranous; ligule white-membranous, 1 mm long. Spikes 3 or 4, erect, subfastigate or the lowest one slightly apart; terminal spike staminate, linear, 1 - 2.8 cm long, 1 mm a cross, pale, with a short inclosed peduncle, equalling or slightly shorter than the highest pistillate spike; lateral spikes pistillate, or rarely with a few staminate flowers at apex, narrowly cylindrical, 2-4.5 cm long, 2.5 - 3 mm wide, subloosely many-flowered on a flexuose rhachilla, the uppermost spike sessile, the lower one (s) peduncled. Bracts 2 or 3, all surpassing the inflorescence, bearing ferruginous auricles at orifice; the lower one(s) 2 to 3 times as long as the inflorescence, short - (0.5-1.2 cm) -sheathing, the uppermost bract setaceous, hardly sheathing. Staminate glumes oval, as a rule more or less connate on margins forming a small cup-like structure, the green costa ending in a long scabrous awn. Pistillate glumes broadly ovate-oval, 1.7-2 mm long excluding awn, membranous, pale, median costa 3 - nerved, projecting beyond the contracted apex into a scabrous recurved awn. Utricles erect, twice or more longer than glume, obovate- to subrhombic-ellipsoidal, 3.8 - 4.2 mm long, 3-sided, thickly membranous, glaucous-green, often red -spotted, many-(10 -12-)nerved, sparsely hairy, cuneate at base, attenuated above into a short conical beak, 2-toothed at orifice. Achene tightly inclosed, elliptic to obovate-elliptic, 2.5 mm long, acute-

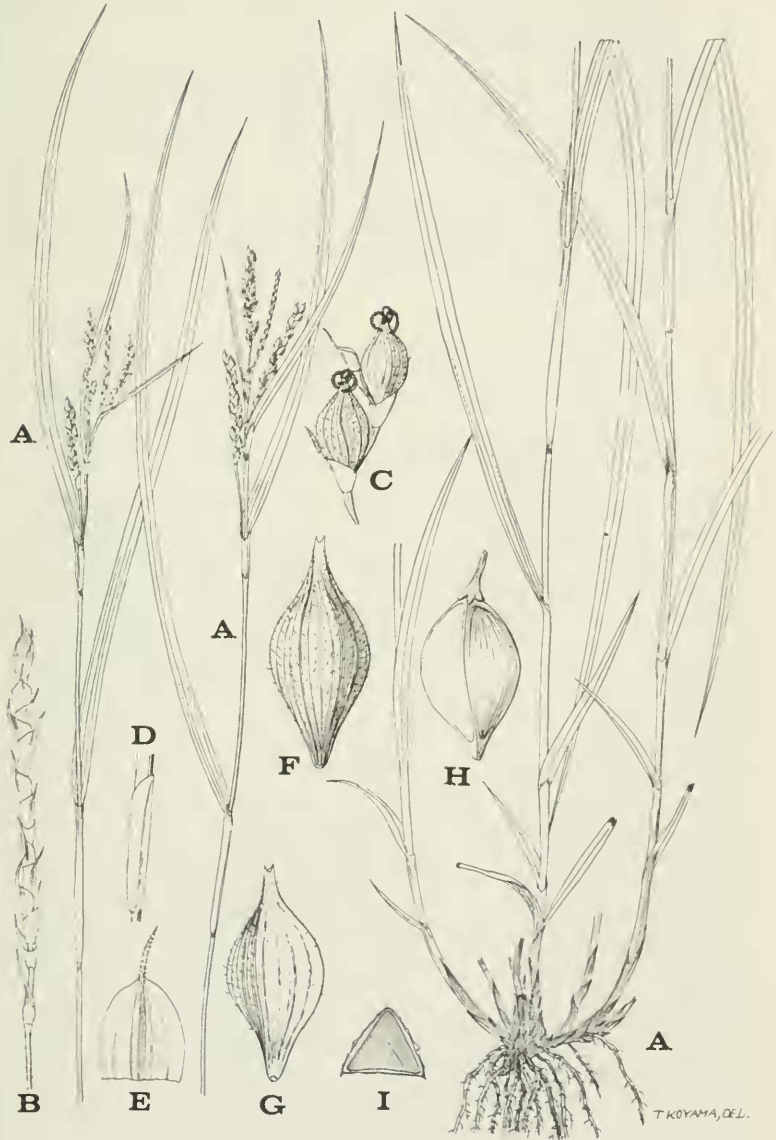


Plate 22. *Carex poculisquama* Kukenthal

ly 3-angled; stylebase conical, thickened and 3-lobed at base; stigmas 3, short, recurved.

Voucher specimen: Japan, Mt. Iwafune in Tochigi Prefecture, T. Koyama, 6604 (NY).

Open limestone slope covered with shallow soil and poor grassy and scrubby vegetation. Extremely rare sedge sporadically found in Mt. Iwafune and Akiyoshi Plateau of Japan and the Nangkin area of Central China.

Plate 22. A. Total plant; B. Staminate spike; C. Two utricles on the rhachilla; D. Prophyll at base of peduncle; E. Pistillate glume; F. Dorsal view of utricle; G. Ventral view of utricle; H. Achene; I. Cross section of utricle.

Plate 23. CAREX HYMENODON Ohwi

Carex hymenodon Ohwi, Act. Phytotax. Geobot. 1: 298. 1932.

Synonymy: *Carex aequibilirostris* Suto & Suzuki, Utsunomiya Nogaku-kenkyu-kai-shi 8, 14, 1933.

Tufted perennial, often forming a dense large clump; stons few, slender, elongated, subloosely covered with pale-brown scales. Shoots phyllopodic. Leaves basal and subbasal, and normally one upper on the culm; leaf-blades linear, 4 - 7 mm wide, shorter than to slightly overtopping the inflorescence, herbaceous, soft, fresh green, flattish, 3-costate, long-sheathing at base; basal sheaths bladed, pale-brown and in part tinged with purple-brown, eventually weakly disintegrating into fibers. Culms central, 1-noded in the midway portion, 40-55 cm tall, slender, 3-sided, smooth except on inflorescence axis. Spikes 3 or 4 (rarely 5 with 2 staminate spikes), all spaced, erect; staminate spike solitary (very rarely with a small sessile second one), terminal on an elongated peduncle, linear, 3 - 4 cm long, pale, later becoming pale-brownish; lateral spikes pistillate, cylindrical, 1.5-4 cm long, 6 mm across, lightly green and rusty-brown when dry, densely or subdensely many-flowered, the upper spike sessile or nearly so, the lowest spike with a short peduncle up to 2 cm long. Bracts 2 or 3, leaf-like, all equalling or briefly surpassing the inflorescence, hardly or in the lowest one short-(0.5 - 1.5 cm)-sheathing. Pistillate glumes ovate, 3-4 mm long, membranous, pale with a broad green belt of 3-nerved costa, acutish at apex. Utricles ovoid or broadly ovoid, patent, swollen, 6-7 mm long, very obtusely trigonous, green and becoming brown when dry, smooth, glabrous, many-nerved, rounded at base, gradually narrowed above to a relatively short beak, shallowly

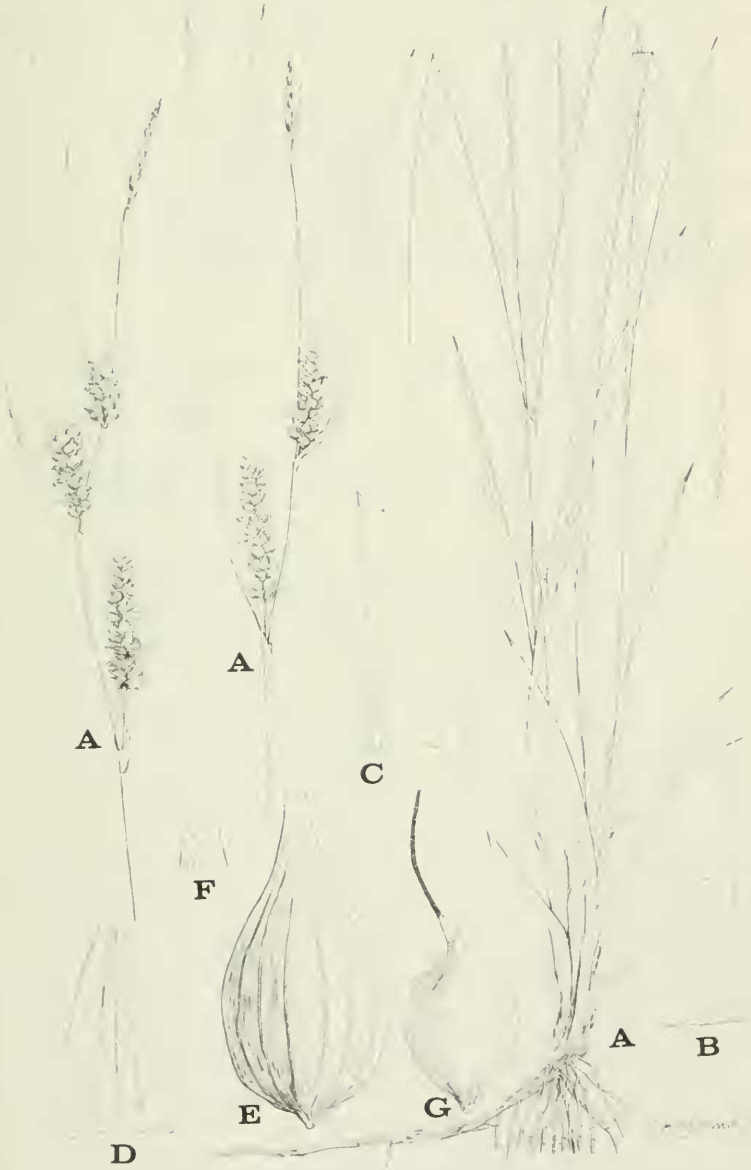


Plate 23. Carex hymenodon Ohwi

2-lobed at hyaline orifice. Achenes loosely enveloped, obovate-elliptic, triquetrous with slightly thickened angles, 2 mm long; style slender, the base more or less persistent but not markedly thickened; stigmas 3.

Voucher specimen: Japan, Mt. Asama-yama in Ohsawa Village, Tochigi Prefecture, K. Ogawa, s.n. (NY, TNS).

Wet grassy depressions in deciduous woods. Confined to the western hilly region of Tochigi Prefecture, Japan.

Plate 23. A. Total plant; B. Portion of leaf blade; C. Staminate glume; D. Pistillate glume; E. Utricle; F. Orifice of utricule; G. Achene.

Plate 24. CAREX TRANSVERSA Boott

Carex transversa Boott ex A. Gray, Narr. Exped. Perry 2: 324. 1857.

Synonymy: Carex brownii Tuckerman var. transversa (Boott) Kükenthal ex Matsumura, Index Plant. Japan. 2(1): 103. 1905.

Densely tufted in large clumps; rhizome short, woody, covered with purple- or reddish-brown scales. Leaves basal and subbasal, occasionally one or two upper on the culm; leaf-blades linear; flattish, 2.5 - 6 mm wide, shorter than culms, soft, herbaceous, glabrous, smoothish, grass-green, long-(2 - 5 cm)-sheathing at base; cauline leaf-sheaths ventrally pale-membranous, transversely truncate at orifice; basal sheaths scale-like or short-bladed, brownish to deeply purplish- or red-brown, finally more or less disintegrating into parallel fuscous fibers. Culms 25 - 70 cm tall, triquetrous, 0.5 - 1 mm thick, 1- to 3-noded, rather soft, smooth except below the inflorescence where often scaberulous on angles. Spikes (2 -) 3 or 4 (- 5), subcontiguous or the lowest one much apart, erect; terminal spike staminate, 1 - 3 cm long, 2 mm across, linear, short-(0.7 - 1.2 cm)-peduncled or sessile, pale green; lateral spikes pistillate, rarely bearing a few staminate flowers at apex, cylindrical to oblong, 1 - 4.5 cm long, 6 - 7 mm in diameter, densely many-flowered, grass-green and becoming brownish when dry, sessile or with an inclosed peduncle up to 1.5 cm long, or the lowest spike occasionally on a long (up to 6 cm) exerted peduncle. Bracts (1 -) 2 or 3 (- 4) leaf-like, equalling to much surpassing the inflorescence, the sheath 0.5 - 4 cm long, the uppermost without sheath and often setaceous, surpassed by the staminate spike. Staminate glumes lanceolate, long-awned. Pistillate glumes ovate to ovate-oblong, 1.5 mm long excluding

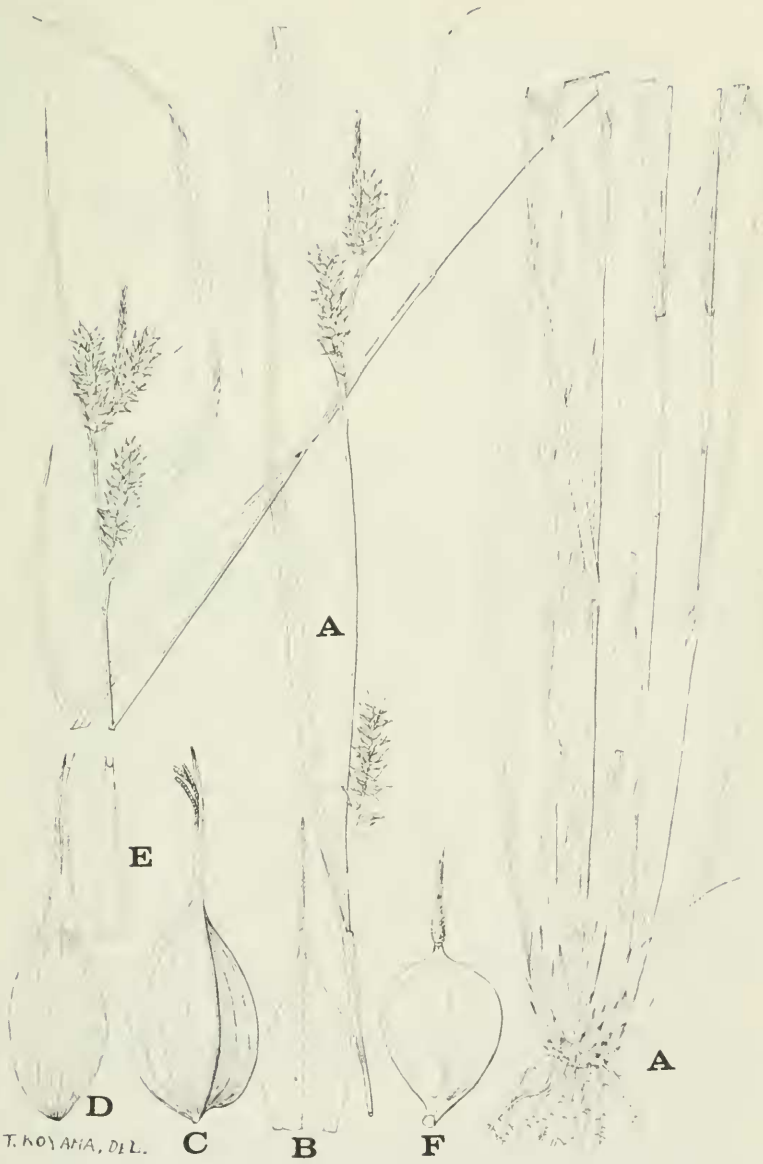
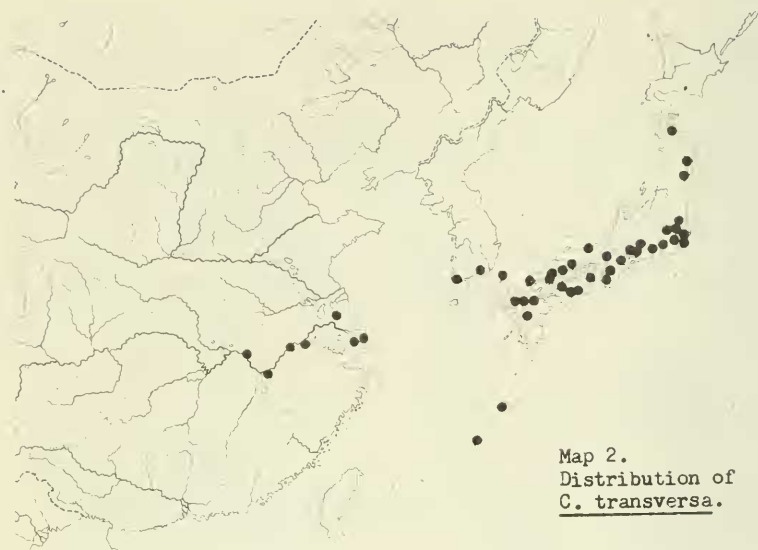


Plate 24. *Carex transversa* Boott



Map 2.
Distribution of
C. transversa.

awn, pale-membranous, acute at apex, the green median belt 3-nerved, projecting beyond the glume apex into a long erect or slightly recurved awn up to 2 mm long. Utricles slightly patent, ovoid to ovoid-ellipsoidal, 5.5 - 6.5 mm long, obtusely trigonous, membranous, many-(8 to 12)-nerved, thinly herbaceous, green and becoming brownish when dry, rounded at base, gradually attenuated above into a long narrow beak, the beak erect or somewhat recurved, 2.2 - 3.2 mm long, smooth, ventrally membranous and deeply lobed for the half way, and exposing stigmas laterally, the apex minutely two-toothed. Achenes loosely enveloped, obovate, 3-sided, 1.5 - 1.7 mm long, cuneate at base, contracted at apex; style slender, elongated, slightly thickened at spongy base; stigmas 3.

Voucher specimen: Japan, Tajimagahara Swamp along Arakawa River, about 4 km SW of Urawa City, Saitama Prefecture, T. Koyama, June 1950 (NY).

Wet or marshy grasslands on aluvial plain or wet shady spots on wooded hillsides, rather common. Temperate eastern Asia from central and western Honshu through Kyushu and southern Korea southwestwards to Okinawa and Yangtze River Valley of Central China.

Plate 24. AA. Total plant; B. Pistillate glume; C. Lateral view of utricle; D. Dorsal view of utricle; E. Ventral side of beak; F. Achene.

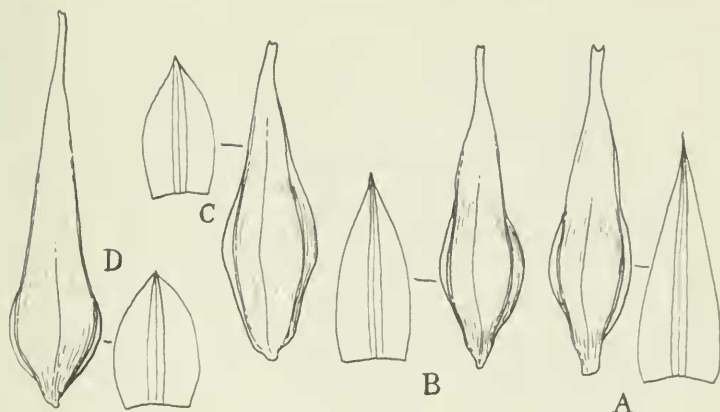


Figure 1. Utricles and pistillate glumes in *Carex jackiana* and its subspecies *macroglossa*. A. *Carex jackiana* subsp. *jackiana*, from India, Khasia, C. Clarke 43850 (K); B. *C. jackiana* subsp. *macroglossa*, from Japan, Saitama, Koyama 387 (TI); C. *C. jackiana* subsp. *macroglossa*, from Japan, Niigata, Ikegami 26082 (NY, TNS); D. *C. jackiana* subsp. *macroglossa*. A form with exceptionally long-beaked utricule (f. *subsessilis*), from Japan, Saitama, Koyama 2880.

Plate 25. CAREX JACKIANA Boott
subsp. MACROGLOSSA T. Koyama

Carex jackiana Boott subsp. *macroglossa* (Franchet & Savatier)
T. Koyama, stat. nov.

Synonymy: *Carex macroglossa* Franchet & Savatier, Enum.
Pl. Japon. 2: 148 & 576. 1879.

Carex jackiana Boott var. *macroglossa* (Franchet & Savatier)
Kükenthal ex Matsumura, Index Pl. Japon. 2(1):
115. 1905.

Carex jackiana Boott subsp. *parciflora* Kükenthal var. *macroglossa*
(Franchet & Savatier) Kükenthal, Pflanzenr.
4(20): 638. 1909.

Carex parciflora Boott var. *macroglossa* (Franchet & Savatier)
Ohwi, Mem. Coll. Sci. Kyoto Univ. Ser. B, 5:
290. 1930.

Plant phyllopodic, densely tufted in large clumps without conspicuous rhizome. Leaves many, radical and one upper on the midway portion of culms; leaf-blades linear, flat, 3 - 8 mm wide,

thinly herbaceous, soft, yellowish green, with 1 midvein and 2 weak lateral veins, gradually acute at apex, long sheathing at base; basal leaf-sheaths short-bladed, yellowish brown, occasionally disintegrating into brown fibers. Culms 10 - 35 (-60) cm tall, 3-sided with acute angles, glabrous, soft. Spikes as a rule 3 or 4, sometimes 5 or 6 with divided lower spikes, all except the upper two spaced; terminal spike staminate, linear-clavate, 0.7 - 1.2 cm long, 1 - 1.2 mm thick, greenish, erect on a short (0.5-2 cm long) peduncle, equalling to slightly surpassing the next pistillate spike; lateral spikes pistillate, oblong, 1-1.8 cm long, 3 - 4 mm thick, subloosely flowered, glaucous green, erect, the upper ones on a short (0.5 - 4 cm long) peduncle, sometimes divided with 1 small side spike. Bracts leaf-like, slightly surpassing the inflorescence, the lower ones long- (2-6 cm long)-sheathing, the uppermost one nearly sheathless. Pistillate glumes ovate, ovate-oval or ovate-elliptic, 2.25 - 2.75 mm long, membranous, pale, contracted to acute or rounded apex, the costa broadly green, 3-nerved, occasionally scaberrulous. Utricles suberect, ovate-fusiform, 5 - 6 mm (rarely up to 8 mm) long, trigonous, thinly herbaceous, whitish-green and becoming brownish when dry, glabrous, smooth, 2-costate, weakly many-veined, contracted at short-stipitate base, gradually narrowed above into a long (2-3 mm long) straight or weakly incurved beak, the orifice white-membranous, obliquely truncate or lobed on the ventral side. Achene tightly enveloped, broadly obovate, three-sided, 1.7 - 1.9 mm long; style elongated, filiform, more or less flexuose; stigmas 3.

Voucher specimen: Japan, Tajimagahara, flood plain of Arakawa River, Saitama Prefecture, T. Koyama, June 1949 (NY).

Rather common in wet grasslands at low altitude. Endemic to southern Korea and Japan, from Kyushu northeastwards to southern Hokkaido.

Plate 25. A. Total plant; B. Pistillate glume; C. Utricle; D & E. Two examples of utricular orifice; F. Achene.

Plate 26. *CAREX PAPULOSA* Boott

Carex papulosa Boott ex A. Gray, Bot. Japan 418. 1859.

Synonymy: *Carex flectens* Boott, Illustr. Carex 4: 171, t. 581. 1867.

Carex grandisquama Franchet, Bull. Soc. Philom. Paris 8^e sér., 7: 51. 1895.

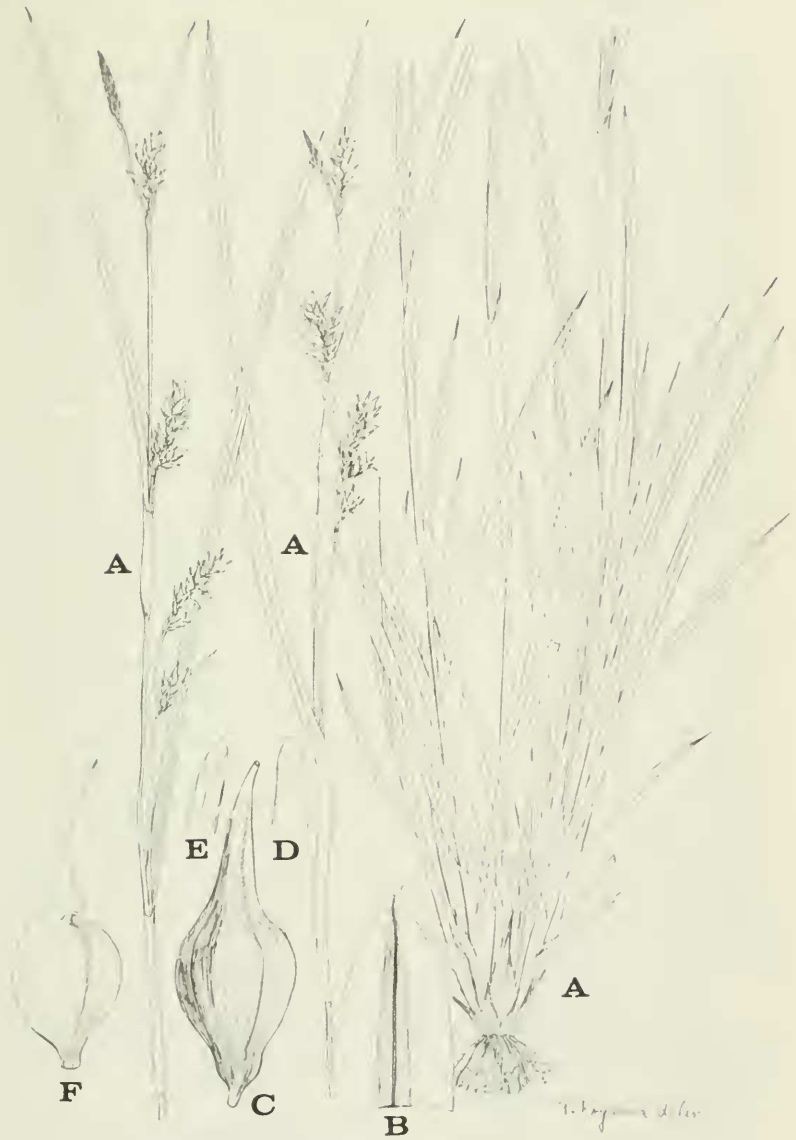


Plate 25. Carex jackiana Boott ssp. macroglossa T. Koyama

Carex papulosa Boott ex A. Gray ff. laxiflora & paupercula Kükenthal, Pflanzenr. 4(20): 637. 1909.

Carex sekimotoi Honda, Bot. Mag. Tokyo 43: 543. 1929.

Plant subloosely tufted with short-decumbent rhizome. Leaves rather many, radical and subradical, the uppermost one often on the lower part of culms; leaf-blades linear or broadly linear, flattish-plicate with 3 costas, 4 - 14 mm wide, thinly herbaceous, soft, glaucous-green, glabrous, acute at apex, long-sheathing at base; leaf-sheaths subloosely clothing the culm-base, pale and often with green transverse nerves, the ventral side white-membranous, obliquely truncate at orifice. Culms central, 30 - 47 cm tall, truly triquetrous, soft; glabrous, smooth, normally 1-noded below the middle. Basal sheaths bladeless or short-bladed, membranous, pale-brownish, eventually disintegrating into fine brown parallel fibers. Spikes 2 or 3, much spaced; terminal spike staminate, linear-cylindrical, 1.7 - 3 cm long, 3 mm thick, erect on long exerted peduncle, fuscous; lateral spikes pistillate, pendant on exerted filiform peduncle 2-3 cm long, oblong or ovate-oblong, 1 - 2 cm long, 4 - 6 mm across, densely manyflowered, glaucous-green and tinged with rusty-brown. Bracts short-bladed, much shorter than the inflorescence, suberect, long-(1.7 - 3 cm)-sheathing at base. Staminate glumes obovate, rounded at apex, reddish-brown, distantly 3-nerved. Pistillate glumes large, broadly oval to obovate-oval, boat-shaped, 5 mm long, glaucous and ferruginous-margined on both sides, the keel a broad green belt with 3 nerves projecting beyond the truncate apex of glume into a long straight scabrous awn. Utricles erect-patent, ovate to rhombic-ovate, trigonous, 5.5 - 6.5 mm long, thickly membranous, glaucous-green with brownish lineolae, smooth and powdery, glabrous, many nerved, cuneate at base, gradually attenuate above into an erect cylindrical beak, the orifice obliquely truncate with ferruginous membranous margin. Achenes tightly enveloped, obovate, triquetrous, 1.8 - 2 mm long, contracted at base, contracted above to a mucronate apex; style slender, 3 mm long; stigmas 3, elongated, 4 mm long.

Voucher specimen: Korea, Sosura, J. Ohwi (KYO, TNS).

Sporadically occurring in grassy ground in deciduous forests. Temperate region of Far Eastern Asia from Hokkaido southwards to central Honshu and Korea, also discontinuously in high altitude of northern Kyushu.

Plate 26. A. Total plant; B. Portion of leaf blade; C. Ligule; D. Portion of culm; E. Staminate glume; F, G. Two views of prophyll at base of peduncle; H. Pistillate glume; I. Utricle; J.



Thoyama, del

Nov. 953.

Plate 26. *Carex papulosa* Boott

Orifice of beak; K. Surface of beak; L. Achene; M. Surface of Achene.

Plate 27. CAREX STENANTHA Franchet & Savatier

Carex stenantha Franchet & Savatier, Enum. Pl. Japon. 2: 146 & 573. 1879.

Synonymy: *Carex stenantha* Franch. & Savatier var. *yatsugatakensis* Akiyama, Journ. Fac. Sci. Hokkaido Imp. Univ. Ser. 5, 1: 60, t. 11, f. 6. 1931.

Subloosely tufted in large clumps. Rhizome branched, rather slender, obliquely ascending, clothed with brown or purple-brown fibers. Leaves rather many, all basal and subbasal, nearly half as long as the culms; leaf blades linear, 7 - 20 cm long, 2 - 3 mm wide, flattish, thinly herbaceous, soft, gradually long-acute at apex; leaf sheaths 1 - 6 cm long, all bladed, the upper ones pale-brown, the basal ones brown to purple-brown, eventually disintegrated into slightly reticulate fine fibers. Culms central, slender, exserted, 14 - 40 cm tall, 0.5 - 0.7 mm thick, trigonous, smoothish, inclined above. Spikes normally 3 to 5, rarely up to 9, all spaced, occasionally the lowest subbasal and on long filiform peduncle arising from leaf axil; terminal spike staminate, linear-lanceolate acute-tipped, 2 - 3 cm long, deeply brown or rusty brown, inclined on a filiform long-exserted peduncle; lateral spikes pistillate, linear-cylindrical, 2 - 4.5 cm long, rusty brown to dark brown, subloosely many-flowered, often basal 2 or 3 flowers very spaced, the peduncle filiform, long-exserted. Bracts much shorter than the spike, the lowest with somewhat leaf-like blade 2 - 6 cm long, the upper ones with short setaceous blade 0.5 - 1.5 cm long, all with a sheathing base 0.7 - 1.4 cm long. Pistillate glumes elliptic to oblong-elliptic, acute-tipped, boat-shaped, 4 - 5 mm long, membranous, rusty brown to purple-brown, the costa pale, 1-nerved, forming a scabrous mucro or projecting into a scabrous short awn at glume apex. Utricles suberect, narrowly lanceolate, trigonous, 6 - 7.75 mm long, membranous, pale to straw-colored, often purplish-lineolate on the lower portion, nerveless except two marginal costas, glabrous, roughened, gradually attenuate at base into a short (1 mm long) stipe, gradually narrowed above to a long erect beak, the margins of beak scabrous, the orifice hyaline, shallowly obliquely lobed or nearly entire. Achenes tightly enveloped in the lower part of utricle, linear-oblong, trigonous, 1.8 - 2 mm long, mucronate at apex, stiped at base; style slender, elongated; stigmas 3.

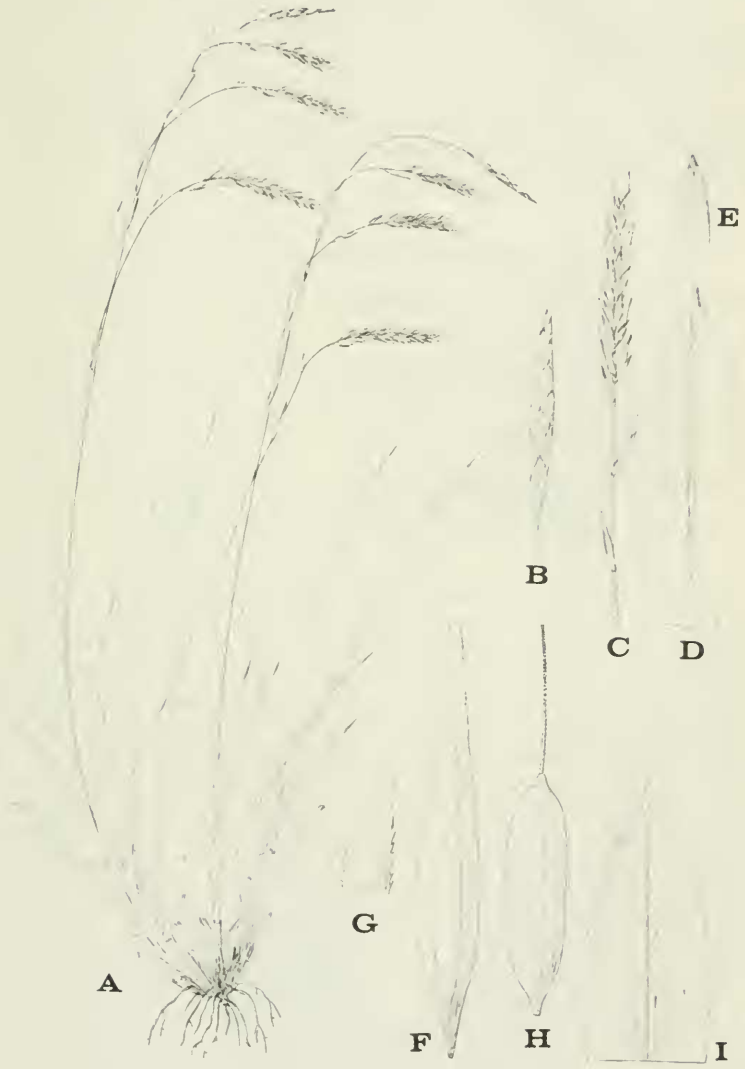


Plate 27. Carex stenantha Franchet & Savatier

Voucher specimen: Japan, Mt. Hiuchi-dake, Nikko National Park, Fukushima Prefecture, 2250 m alt., T. Koyama July 1950 (NY).

Relatively abundant in rocky slopes, sandy places or grasslands in subalpine to alpine zone. Endemic to central and northern Honshu, Japan.

Plate 27. A. Total plant; B. Staminate spike; C. Pistillate spike; D. Staminate glume; E. Apical part of anther; F. Pistillate glume; G. Dorsal view of utricle; H. Ventral view of utricular orifice; I. Achene.

Plate 28. CAREX SHIMIDZENSIS Franchet

Carex shimidzensis Franchet, Bull. Soc. Philom. Paris 8^e sér., 7: 33. 1895.

Synonymy: *Carex nervulosa* Franchet, Bull. Soc. Philom. Paris 8^e série, 9: 120. 1897.

Carex sorachensis Léveillé & Vaniot, Bull. Soc. Bot. Fr. 51: 205. 1904.

Carex shimidzensis Franchet var. *nervulosa* (Franchet) Kükenthal, Pflanzenr. 4(20): 357. 1909.

Carex takeshimensis Nakai, Bot. Mag. Tokyo 31: 281. 1909.

Plant aphyllopodic, subloosely tufted in large clumps. Rhizome thick, obliquely ascending, clothed with reddish-brown scales; roots robust. Cataphylls bladeless, 1 - 15 cm long, the lower ones brown to purplish-fuscous, only slightly disintegrating into brown fibers; the upper ones pale, the ventral side brown hyaline. Bladed leaves 3 to 6 to a culm, the upper two borne on the midway portion of culm, spaced, the lower 3 or 4 close together on the basal part of the culm; blades broadly linear, 4 - 12 mm wide, 3-nerved, flattish, surpassing the culm, herbaceous, soft, whitish-green, gradually tapering above to a long acute apex, the basal leaves long-sheathing at base, the upper ones short-(1 - 1.5 cm long)-sheathing. Spikes 3 to 6, short-peduncled, approximate, nodding; terminal spike gynaeandrous or staminate, 4 - 6 (- 10) cm long, the staminate part 2 - 2.5 mm thick, pale-brown or greenish; lateral spikes as a rule pistillate, rarely androgynous with short or long staminate portion, 4 - 13 cm long, 5 mm thick, cylindrical, densely many-flowered, whitish-green; peduncles filiform, smoothish, the lowest 1 - 2 cm long, others shorter. Bracts leaf-like, all non-sheathing at base, the lowest bract twice to thrice as long as the inflorescence, second bract equalling or slightly overtopping the inflores-

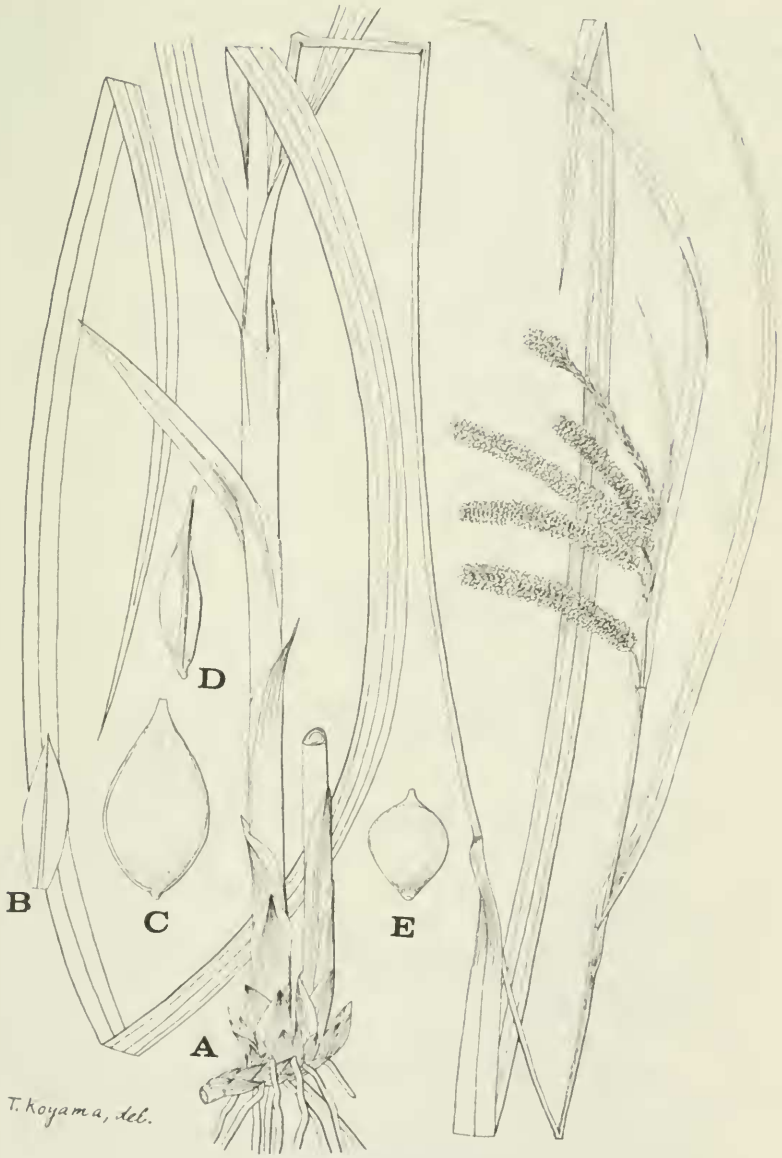


Plate 28. *Carex shimidzensis* Franchet

cence, upper bracts subsetaceous. Pistillate glumes elliptic or ovate-oblong, 2.7 - 3 mm long, membranous, pale or later tinged with straw-color, attenuate above to acute or mucronate and roughened apex, the costa green, 3-nerved. Utricles spreading when mature, much longer and wider than the glume, ovate, 2.8 - 3.2 mm long, thickly lenticular, membranous, greenish above, pale and brown-spotted below, faintly few-nerved or nearly nerveless except two marginal veins, rounded at base, attenuate above to a short conical smooth beak, the orifice shallowly emarginate, hyaline. Achene loosely enveloped, obovate-oval, 1.5 mm long, biconvex, cuneate at base, rounded at apex; style filiform, elongated; stigmas 2.

Voucher specimen: Japan, Sampei Pass in Nikko National Park, Gumma Prefecture, T. Koyama, July 1950 (NY).

On wet ground or stream bank in mountain forests. Endemic to Japan, from Kunashiri Island through Hokkaido and Honshu southwestwards to northern Kyushu and Takeshima Island.

Plate 28. A. Total plant; B. Pistillate glume; C. Dorsal view of utricle; D. Lateral view of utricle; E. Achene.

Plate 29. *CAREX PRESCOTTIANA* Boott
subsp. *KIOTENSIS* T. Koyama

Carex prescottiana Boott subsp. *kiotensis* (Franchet & Savatier)
T. Koyama, stat. nov.

Synonymy: *Carex kiotensis* Franchet & Savatier, Enum.
Pl. Japon. 2: 128 & 556. 1879.

Carex fuscescens Böckeler, Bot. Jahrb. 5: 517. 1884.

Carex guffroyana Léveillé & Vaniot, Bull. Acad. Intern.
Géogr. Bot. 10: 203. 1901.

Carex kinashii Léveillé & Vaniot, Bull. Soc. Bot. France
51: 204. 1904.

Carex prescottiana Boott var. *kiotensis* (Franchet & Savatier) Kükenthal ex Matsumara, Index Pl. Japon. 2(1): 127. 1905.

Carex prescottiana Boott var. *fuscescens* (Böckeler) Kükenthal, Pflanzenz. 4(20): 356. 1909.

Plant phyllopodic, densely tufted in large clumps; rhizome abbreviated, erect to erect-oblique; roots stout. Leaves many, radical and one upper on the midway portion of the culm; leaf-blades linear, slightly overtopping the culm, 4 - 8 mm wide,



flattish-plicate with 3 costas, lightly green stiffish, prominently scabrous on margins and adaxial costas, gradually attenuate to sharply acute apex; cauline leaf non-sheathing; sheaths of radical leaves 2 - 7 cm long, rusty-brown or purplish-brown, coriaceous; basal sheaths subcataphylloid, eventually more or less disintegrating into reticulate fibers especially on ventral side. Culms central erect, 27 - 60 cm tall, acutely triquetrous, 2 mm thick, rigid, scabrous on angles, 1-noded. Spikes 5 to 7, approximate and often subfastigate, upper ones subsessile and erect-patent, lower ones peduncled and inclined; terminal spike staminate or rarely with a short pistillate portion at apex, linear, 4 - 10 cm long, lightly brown, surpassed by the next two pistillate spikes; lateral spikes pistillate or sometimes bearing a short staminate part either at apex or in midway part, cylindrical, 5 - 15 cm long, 4 - 4.5 mm thick, yellow-brown to orange-brown, densely many-flowered, upper ones short-peduncled, lower ones with peduncle up to 5 cm long. Bracts 3 to 5, leaf-like, the longer ones much surpassing the inflorescence, the upper ones short and becoming setaceous, none sheathing. Pistillate glumes ovate-elliptic, 2 - 2.3 mm long, membranous, pale-green and tinged with light brown especially on margins, contracted above to acute tip, the costa green, 3-nerved, forming a scabrous mucro at glume apex. Utricles longer and wider than the glume, patent, elliptic to ovate-elliptic, lenticular, 2.5 - 2.7 mm long, membranous, pale-brown or straw-colored, densely spotted with brown tannin cells, hardly veined, contracted at the short-stipitate base, subabruptly attenuate to short conical beak, the orifice emarginate. Achene loosely contained, broadly ovate, lenticular, 1 - 1.25 mm long; style slender, straight; stigmas 2.

Voucher specimen: Japan, by trail between Oshimidzu and Sampei Pass, ca. 850 m alt., Gumma Prefecture, T. Koyama July 1950 (NY).

Common in wet grasslands, stream sides or on unstable slope in montane region of Japan, from Hokkaido throughout Honshu southwestwards to Shikoku and Kyushu.

Plate 29. AAA. Total plant; B. Portion of leaf showing the adaxial side; C. Staminate glume; D. Pistillate glume; E. Utricle; F. Portion of utricle, enlarged to show tannin spots; G. Transverse section of utricle; H. Achene.

Plate 30. CAREX INCISA Boott

Carex incisa Boott in A. Gray, Narr. Exped. Perry 2: 327.1856.

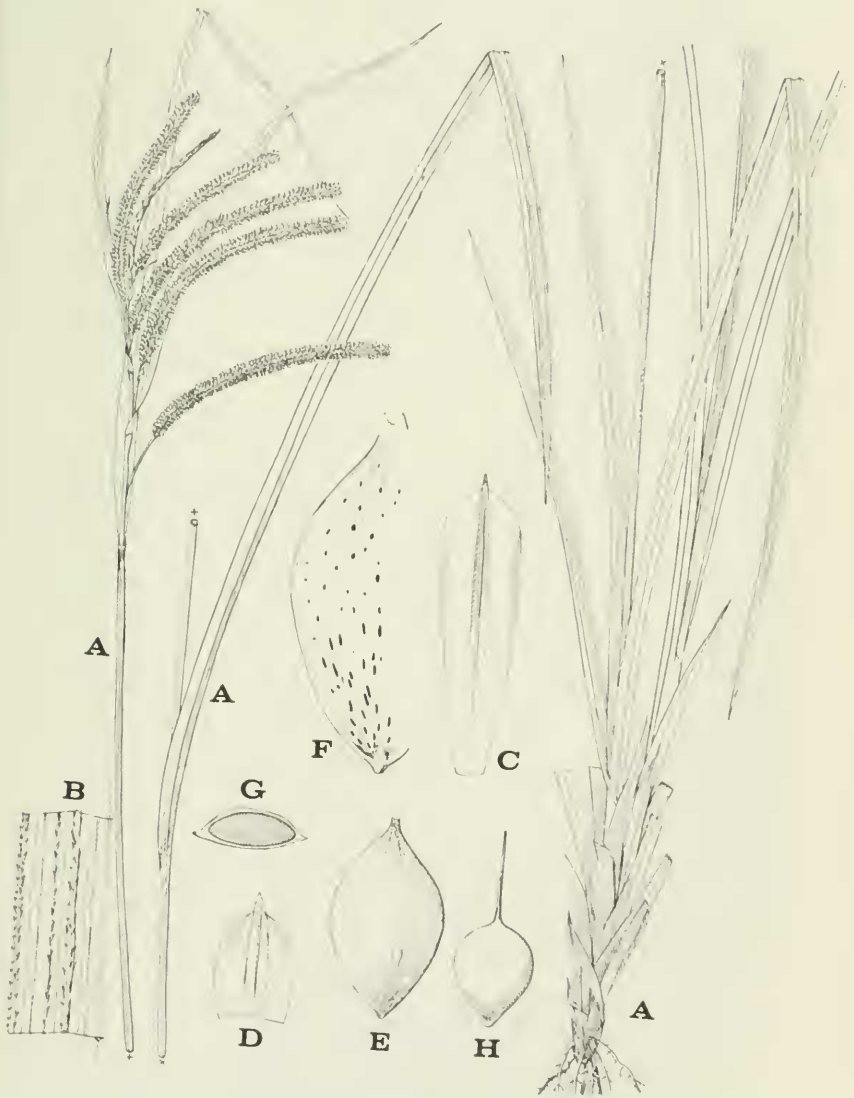


Plate 29. *Carex prescottiana* Boott ssp. *kiotensis* T. Koyama

Synonymy: Carex textori Miquel, Ann. Mus. Bot. Lugd. - Batav. 3: 151. 1867.

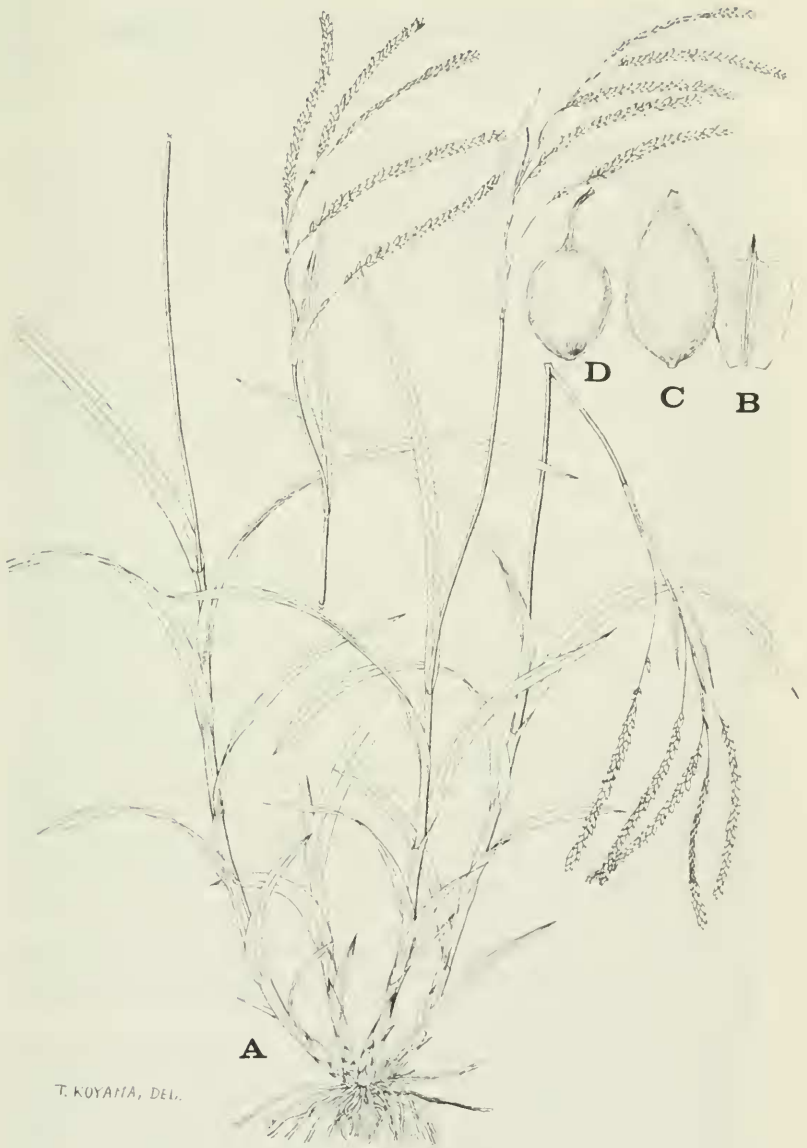
Carex incisa Boott forma textori (Miquel) Miquel, Ann. Mus. Bot. Lugd. - Batav. 3: 193. 1867.

Plant aphyllopodic, loosely tufted. Rhizome short, branched, occasionally stoloniferous; roots slender but stout. Bladeless sheaths at culm bases scale-like to spathaceous, 0.5 - 4 cm long, thinly herbaceous, cinnamon-colored or reddish-brown, finally disintegrating into fine fibers. Leaves several to a culm, borne on the lower 1/3 to half of culms, rather spaced but sheaths overlapping without exposing culm-internodes; leaf-blades narrowly linear, much shorter than culms, 3 - 6 mm wide, thinly herbaceous, flattish, glaucous-green above, white-powdery beneath, subabruptly short-acute at apex; ventral side of leaf-sheaths membranous, cinnamon-colored or pale-brownish, spotted with rusty brown. Culms 10 - 60 cm tall, slender, 3-sided, smooth except below inflorescence where scaberulous, inclined above. Spikes 4 - 6, subfastigate; terminal spike staminate or gynaeandrous with short pistillate part, narrowly linear, 2 - 4.5 cm long, 1.5 - 2 mm thick, pale, sessile or nearly so, equalling or shorter than the next pistillate spike; lateral spikes pistillate, rarely with a small number of staminate flowers, narrowly cylindrical, 3 - 7 cm long, 2.5 - 2.7 mm thick, subdensely many-flowered, glaucous-green, the upper ones short-peduncled to sessile, the lower on a capillary peduncle, the peduncles 0.5 - 5 cm long. Bracts much shorter than the inflorescence, the lowest leaf-like, 6-8 cm long, not sheathing, other bracts subsetaceous, 0.5 - 1.7 cm long, not sheathing. Pistillate glumes obovate, flattish, 2 mm long, membranous, pale with rusty brown spots, truncate to shallowly emarginate at apex, the 3-veined green costa projecting beyond the glume apex into a short erect scabrous awn. Utricles sub-erect, ovate, lenticular, 2.8 - 3 mm long, membranous, glabrous, olive-green above, straw-colored toward the base, often spotted with dark tannin cells, nerveless except on margins, rounded at base, subabruptly narrowed above to a short conical beak, obscurely 2-toothed at orifice. Achenes tightly enveloped, broadly obovate, lenticular, 2 mm long, contracted at both ends; style noticeably thickened at base; stigmas 2.

Voucher specimen: Japan, Tajimagahara, flood plain of Arakawa River, Saitama Prefecture, T. Koyama May 22, 1949 (NY).

Frequent in wet grasslands in montane regions or on alluvial plains. Endemic to Japan; throughout Hokkaido and Honshu.

Plate 30. A. Habit; B. Glume; C. Utricle; D. Achene.



T. KUYAMA, DEL.

Plate 30. Carex incisa Boott